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Integrated education through lectures, case scenarios, and peer groups enhances health cadres' knowledge and attitudes

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Abstract

Purpose: Stunting is a serious global issue characterized by children's height not being proportional to their age. The high prevalence of stunting is caused by factors such as chronic malnutrition, recurrent infections, and a lack of psychosocial stimulation during the first 1,000 days of life. This study aims to evaluate the effectiveness of integrated education in improving health cadres' knowledge and attitudes regarding stunting prevention in Panggungharjo Village. **Methods:** The method used was quantitative with a quasi-experimental design without a control group, involving 14 health cadres for toddlers as the sample. Data were analyzed using a paired t-test. **Results:** The results showed a significant improvement in knowledge between the pre-test and post-test ($p < 0.05$). However, the attitude assessment results indicated a p-value of 0.087, suggesting that the attitude improvement from the pre-test to the post-test was not statistically significant ($p > 0.05$). **Conclusion:** This study concludes that integrated education involving lectures, case scenarios, and peer group methods is efficacious in improving health cadres' knowledge about stunting prevention. However, it has not yet proven effective in enhancing cadres' attitudes. Therefore, additional strategies are needed to improve the attitudes of health cadres. The implementation of similar educational methods in other communities is expected to contribute to a sustainable reduction in stunting prevalence.

Keywords: community empowerment; early childhood nutrition; growth and development monitoring; stunting

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INTRODUCTION

The primary nutritional health challenge today is the high prevalence of stunting globally. According to the World Health Organization (WHO), stunting happens when a child's height is not appropriate for their age [1]. Based on the 2022 UNICEF-WHO report, 148.1 million children under the age of 5 (22.3%) were too short for their age, representing a 1.36% decline from the previous year. However, this reduction remains far from the World Health Assembly (WHA) target of a 40% reduction in stunting by 2025. Regionally, more than half of all stunting cases happen in Asia, with approximately 31.6 million cases among children under five, including 13.61% of cases in Southeast Asia [2]. According to the Asian Development Bank (ADB) report in 2020, Indonesia has the second-highest stunting rate in Southeast Asia among children under five years old [3].

Indonesian Nutrition Status Survey (Survei Status Gizi Indonesia/SSGI) recorded a decrease in stunting prevalence in Indonesia, from 24.4% in 2021 to 21.6%, with a national target of 14% by 2024. This prevalence rate reflects contributions from various provinces across Indonesia. The high prevalence of stunting is caused by several factors, including chronic malnutrition, recurrent infections, and inadequate psychosocial stimulation during the first 1,000 days of life [4].

A comprehensive educational approach is essential to address the causes of stunting. Effective health education can improve the knowledge and attitudes of health cadres, who play a vital role in stunting prevention. Peer group methods, for instance, have been proven effective in improving individuals' knowledge and attitudes in various health contexts [5,6]. This method allows health cadres to share experiences and information, creating a supportive learning environment [7]. The use of case scenarios in education can help cadres understand real-life situations in the community, allowing them to provide more appropriate interventions [8].

The importance of integrated education is also emphasized by Muthmainna, who highlights that approaches encompassing various aspects, including nutrition and health education, can contribute to reducing stunting rates in toddlers [7]. By combining lecture methods, case scenarios, and peer groups, health cadres are expected to gain a deeper understanding and develop more positive attitudes toward stunting prevention. Previous studies have shown that educational interventions involving various methods can significantly improve the knowledge and attitudes of health cadres [9].

Health cadres have an essential role in stunting prevention efforts as the frontline educators for the community [10]. By improving the knowledge and attitudes of health cadres through integrated educational methods, they are expected to become more effective in delivering information to the community. This aligns with research showing that effective health education can have a positive effect on community nutritional behaviors and, ultimately, reduce stunting rates [11].

This community service activity aims to explore the effectiveness of lecture methods, case scenarios, and peer groups in improving the knowledge and attitudes of health cadres in Panggung Harjo. By effectively implementing these methods, it is expected to develop better educational strategies for stunting prevention within the community. This study is anticipated to significantly contribute to public health improvement efforts, particularly in addressing stunting, which remains a significant challenge in Indonesia.

METHODS

This community service activity utilized a quasi-experimental design without a control group. The sampling method applied was total sampling, focusing on child health cadres in Pelemsewu, Panggungharjo, totaling 14 participants. A pre-test was conducted before the educational intervention, which was delivered using an integrative approach. The intervention included lectures, case scenarios, and peer group games (such as Snakes and Ladders, a stunting game box, myths and facts, and a My Plate puzzle) as shown in Figure 1. Further details of the peer group game interventions are as follows:

a. Snakes and Ladders was played for 30–40 minutes in each session, once per meeting. Participants could end the game when a winner reached the final square or when all participants completed the board. The game used a standard board and dice, with a minimum of two participating mothers per round.
b. Stunting Game Box was conducted in small groups of at least two mothers. Each participant would draw a random card and be asked to explain the content. This activity lasted for 40–60 minutes per session and aimed to stimulate discussion and reflection.
c. My Plate Puzzle (Isi Piringku) was used during individual educational sessions with mothers. Each session lasted 20–30 minutes and involved assembling a puzzle representing a healthy and balanced diet for children.
d. Myths and Facts on Stunting was a group-based activity conducted when mothers gathered. Each participant chose whether a given statement was a myth or fact and was asked to justify their choice. This session lasted approximately 30–40 minutes.

A post-test assessment was then conducted after the intervention. The data analysis comprised univariate analysis to describe respondent characteristics, including age, education, occupation, sources of stunting information, and duration of service as a cadre. Bivariate analysis was conducted using the paired t-test, as the data were normally distributed. Data analysis was performed using SPSS Statistics 26.

Figure 1. Peer grup game education (Snakes and ladders, stunting game box, myths and facts, and my plate puzzle)

RESULTS

Respondent characteristics

Based on Table 1 most respondents in this study had a senior high school (SMA) educational background (64.3%). Most of them worked as housewives (78.6%) and obtained information about stunting through non-social media sources, such as health workers or neighbors (64.3%). Additionally, the majority of respondents had less than five years of experience as health cadres (57.1%).

Table 1. Respondent characteristics

Characteristic	n	%
Education		
Primary education (elementary school)	1	7.1
Secondary education (junior high school)	2	14.3
Higher secondary education (senior high school)	9	64.3
Tertiary education	2	14.3
Occupation		
Housewive	11	78.6
Private employee	2	14.3
Teacher	1	7.1
Source of stunting information		
Social media	3	21.4
Non-social media (e.g., health workers, neighbors)	9	64.3
Both social and non-social media	2	14.3
Duration of service as a cadre (years)		
< 5	8	57.1
5–10	4	28.6
> 10	2	14.3

Data normality

The normality test was conducted using the Shapiro-Wilk test since the number of respondents was fewer than 50. The analysis results showed that the pre-test knowledge data had a significant value of 0.697, the post-test knowledge data had a value of 0.149, the pre-test attitude data had a value of 0.066, and the post-test attitude data had a value of 0.237. Since all significance values ($p > 0.05$), it can be concluded that the data for both knowledge and attitude variables, before and after the intervention, were normally distributed. Therefore, the paired t-test was used for further analysis.

Effect of integrated education on knowledge and attitude

Based on the paired samples statistics (Table 2), the mean difference between the pre-test and post-test was -2.5, with a standard deviation of 2.21. A 95% confidence interval and a significance value (2-tailed) of 0.001 indicate a significant difference between pre-test and post-test scores. The knowledge score increased by 46.6% following the integrated education intervention, demonstrating its substantial impact.

Table 2 shows the effect of integrated education on the attitudes of health cadres. The mean difference in attitude scores between the pre-test and post-test was 2.214. Statistical test results showed a p-value of 0.087, indicating that the increase in mean attitude scores from the pre-test to the post-test was not statistically significant ($p > 0.05$). This suggests that, although there was an improvement in attitudes after the integrated education intervention, the difference was not significant at a 95% confidence level.

Table 2. Effect of integrated education on knowledge and attitude

Variable		Mean	SD	p-value
Knowledge	Pre-test	5.36	1.781	0.001
	Post-test	7.86	1.834	
Attitude	Pre-test	52.07	5.54	0.087
	Post-test	54.29	4.999	

DISCUSSION

Respondent characteristics

The majority of health cadres in this study had a senior high school educational background (64.3%). Research shows that cadres with a strong academic background tend to have better knowledge about the detection and prevention of stunting [12]. This is crucial, as adequate knowledge allows cadres to play a more effective role in providing education to the community. Cadres who are closely connected to the community can deliver health information, including stunting-related topics, more effectively because they are seen as part of the community [13]. With adequate education, cadres can confidently share information and answer questions, enhancing public understanding of stunting prevention.

The majority of health cadres in this study were housewives (78.6%). This highlights the significant role housewives play in stunting prevention within the community. As the primary caregivers, housewives have a substantial influence on the dietary patterns, health, and development of their children. Research by Permanasari [14] indicates that housewives with good knowledge of child nutrition and health are more likely to provide nutritious food and adopt proper childcare practices for their children. According to research by Nuraini, et al., housewives involved in health cadre activities have better knowledge about stunting prevention and can implement good nutritional practices within their families [15]. This indicates that the role of housewives as health cadres is not limited to disseminating information but also includes applying that knowledge in their daily lives.

According to research by Nuraini et al., housewives involved in health cadre activities have better knowledge about stunting prevention and can implement good nutritional practices within their families [15]. This indicates that the role of housewives as health cadres is not limited to disseminating information but also includes applying that knowledge in their daily lives. Research by Ningtias highlights that health cadres act as agents of change at the community level by raising awareness and improving public knowledge about stunting and the necessary health practices to prevent it [16]. Suarayasa emphasizes that collaboration between Integrated Health Post (posyandu) cadres, healthcare workers, and village stakeholders can optimize stunting prevention through effective communication [17].

Research by Sukmawati shows that cadres with more extensive experience in health education tend to be more effective in delivering information and implementing necessary interventions to prevent stunting [18]. Suratri et al. emphasize that cadres with greater experience are more likely to be confident in providing information and counseling to parents about the importance of nutrition and stunting prevention [19]. This indicates that additional training and experience can improve cadres' ability to deliver high-quality education.

Improvement in cadre knowledge

These findings are consistent with previous research indicating that integrated educational approaches can improve participants' knowledge. The application of diverse learning methods, such as lectures, group discussions, and simulations, can strengthen participants' understanding of health issues [20]. This finding is consistent with Zakiah, et al., research, which revealed that training based on active interaction between participants and facilitators increased the knowledge and skills of health cadres in stunting prevention efforts [21]. This enhancement in understanding is considered crucial, as health cadres with adequate knowledge about stunting are more effective in providing education to the community. Furthermore, Pujianto, et al., demonstrated that well-trained health cadres can function as agents of change within the community, thereby increasing public awareness regarding the importance of nutrition and stunting prevention [22]. This study illustrates that practical training not only improves knowledge but also enhances the skills of cadres in educating the community. This assertion is supported by research conducted by Zhukra, et al., [23], which found that health cadres engaged in interactive training exhibited superior skills in detecting and addressing health problems within their communities.

Effect on attitudes

The results of this study indicate that although there was an increase in the average attitude scores from the pre-test to the post-test, the difference was not statistically significant. This could be attributed to several factors, including the cadres' already sufficient baseline knowledge. If the cadres' attitudes during the pre-test were already in the positive category, the room for significant changes or improvement becomes limited, resulting in the integrated educational intervention contributing only a slight increase. Moreover, since good knowledge is often associated with positive attitudes, the cadres might have already possessed a strong understanding and attitude toward stunting prevention before the education was implemented. Further improvements, while present, were not substantial enough to yield a statistically significant difference at a 95% confidence level. Thus, although integrated education is beneficial, its effect may be more evident in reinforcing already positive attitudes rather than drastically changing them. Research by Nurhaeni et al., supports these findings, showing that strengthening existing knowledge can result in minor changes in attitudes, particularly when the baseline knowledge is already adequate [24]. Additionally, Naulia et al. found that when initial attitudes are already positive, achieving significant changes in attitudes following educational interventions becomes more challenging [25]. This suggests that to achieve greater changes in attitudes, a more in-depth or continuous educational approach may be required. Research by Rachmawati et al. highlights that attitude changes often take time and require repeated exposure to information to be effectively internalized by individuals.

CONCLUSION

In conclusion, integrated education using lectures, case scenarios, and peer groups has been proven effective in improving the knowledge of health cadres regarding stunting prevention in Panggung Harjo. Statistical analysis showed a significant increase in knowledge, with a mean pre-test score of 5.36 and a post-test score of 7.86, resulting in a mean difference of -2.5 and a p-value of 0.001 ($p < 0.05$). This indicates that education provides the cadres with a better understanding of how to identify and address stunting risk factors. Although there was an increase in the average attitude score from 52.07 (pre-test) to 54.29 (post-test), this difference was not statistically significant ($p = 0.087$), indicating that further reinforcement is needed to improve attitudes. These findings suggest that integrated education can be effective in enhancing knowledge but requires additional approaches to more deeply influence the attitudes of cadres. The success of this intervention underscores the importance of interactive and continuous educational programs in driving positive changes at the cadre level, where they serve as the frontline in stunting prevention efforts.

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